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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,433	02/12/2002	Yanbin Shao	13854-009001	8735
26181	7590	04/01/2005	EXAMINER	
FISH & RICHARDSON P.C. 3300 DAIN RAUSCHER PLAZA MINNEAPOLIS, MN 55402			JUBA JR, JOHN	
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			2872	
DATE MAILED: 04/01/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

2/c

Office Action Summary	Application No. 10/075,433	Applicant(s) SHAO, YANBIN	
	Examiner John Juba, Jr.	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 6, 8, 12-14 and 18-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5, 6 and 18-21 is/are allowed.
- 6) ☒ Claim(s) 8, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/05/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8, 12, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Cao (U.S. Patent number 6,760,158). Referring *for example* to Figures 5a and 5b, Cao discloses a method for transmitting light among a first input port, a first output port, and a second output port, the light having either a first polarization (P) or a second polarization (S), the method comprising:

transmitting a light signal including a first component (even wavelength) and a second component (odd wavelength) having a first (P) and a second polarization (S), respectively, from the first input port (116d) [with the first polarization (P), after rotating the state of the s-polarized odd wavelength component in the polarizing port, as explained with regard to Fig. 1d] onto a polarization beam splitter (502);

[rotating the polarization states of both components to S];

directing the first component (even wavelength) of light onto a first reflector (110);

[rotating the polarization state of the even wavelength in the interferometer to the first (P) polarization];

reflecting the first component (even wavelength) of light onto a first non-reciprocal device (106)(108);

changing the polarization of the first component (even wavelength) of light from the first polarization (P) to a second polarization (S);

directing the first component (even wavelength) of light into a first output port (116b);

[directing the second component (odd wavelength) of light onto the first reflector (110), maintaining its polarization state as the second (S) polarization];

directing the second component (odd wavelength) of light onto a second non-reciprocal device (202)(204);

maintaining the polarization of the second component of light as the second component passes through the second non-reciprocal device; and

directing the second component of light into the second output port (116c) substantially contemporaneously in time with the directing of the first component of light in to the first output port.

With regard to claim 12, the directing the first component (even wavelength) of light into a first output port (116b) includes directing the component through the incident surface of a "polarizer" (102).

With regard to claim 13, directing the second component (odd wavelength) of light into the second output port (116c) includes directing the component through the incident surface of a "polarizer" (104) or (502).

Allowable Subject Matter

Claims 1 – 3, 5, 6, and 18 – 21 are allowable over the prior art. For the reasons previously indicated with respect to the subject matter thereof, Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art, taken alone or in combination, fails to teach or fairly suggest

particularly wherein the polarization beam splitter is optically coupled to the first input port and operable to reflect the first component of light *transmitted from the first input port having the first polarization* and to pass the second component of light *transmitted from the first input port having the second polarization*, as now recited in the combination of claim 1; or

particularly wherein the second reflector is operable [on the first and second light signals] to maintain a polarization of the first and second light signals, as now recited in the combination of claim 18.

Although the citation was unaccompanied by a statement of relevance, the FUJI ELECTROCHEM reference cited in Applicant's I.D. S. of November 4, 2004 (JP 09-

133894 A) has again been considered to the following effect. FUJI ELECTROCHEM disclose an optical circulator and identify "leakage" paths wherein light from a single input port couples to various portions of the assembly in addition to the intended output *port*. These various portions may be regarded as beam *dumps*, but would not be regarded as *ports*. FUJI ELECTROCHEM disclose the four ports of the circulator, and specifically teach isolation among the ports, such that light couples from any given port only to a *single* port. [The examiner had already cited this reference in the Office action of June 19, 2004.]

Applicant also cited U.S.A. KAIFA TECHNOLOGY (WO 99/12061 A1), which also warrants comment. In the embodiment of Figure 1, "rotators" 82/92, 84/94, 86/96, and 88/98 are disclosed as half-wave plate assemblies oriented for 45° of rotation. It will be appreciated that half-wave plates are *reciprocal* rotators that rotate the polarization state of light passing in one direction by an angle theta, and that rotate the polarization state of light traveling in the opposite direction by an angle of minus theta (when viewed along the same direction). Thus, operation of the embodiment shown in Figure 1 is *not* as disclosed with respect to Figures 4A – 4C. For example, light returning to the first port as shown in Figure 4B, would have its polarization states rotated *back* to the states shown at beam splitter (102) in Figure 4A, rather than as shown in Figure 4B. It is believed that the authors mistakenly switched locations of wave plates (84) and (94) in Figure 4A. With regard to claim 18 and the later embodiments of this reference, it cannot be said that light is input to the device with the

recited "first" and "second" polarization states, since the pass and reflection axes of the beam splitter (as recited in the claim 18) define the first and second states, respectively.

Response to Amendment

Applicant's amendment of claim 14 overcomes the previous objection thereto for an informality in the claim.

Applicant's amendment of claim 1 is sufficient in overcoming the previous rejection of claims 1, 3, and 6 under 35 U.S.C. §102(e) as being anticipated by Cao (U.S. Patent number 6,760,158), since the beam splitter of Cao is not operative on a component from the first port having the first polarization, as now recited.

Applicant's remark concerning the rejection of claims 8, 12, and 13 under §102(e) as being anticipated by Cao have been fully considered but are not found persuasive. Notably, the amendment to claim 8 is a *broadening* amendment. Thus, just as it was proper to regard the method of Cao (e.g., in Figs. 5a & 5b) as including the step of

transmitting a light signal including a first component (even wavelength) and a second component (odd wavelength) having a first (P) and a second (S) polarization respectively, from the first input port (116d) *with the first polarization (p)* [after rotating the state of the s-polarized odd wavelength component in the polarizing port] onto a polarization beam splitter (502),
it is proper to regard the method as including the step of

transmitting a light signal including a first component (even wavelength) and a second component (odd wavelength) having a first (P) and a second (S) polarization respectively, from the first input port (116d) [*with the first polarization (p)*, after rotating the state of the s-polarized odd wavelength component in the polarizing port] onto a polarization beam splitter (502).

The first port of Cao, can as well be regarded as comprising the input fiber, whereby it is safe to say that light including two components having both S and P polarizations is transmitted from the first port onto a beam splitter, after some manipulation. The recitation of first and second components and first and second polarizations is regarded as descriptive of the light at the first port, rather than descriptive of light incident on the beam splitter. Of course, it would be quite different to recite a step of "transmitting light including two components from a first port *with first and second polarizations, respectively* onto a polarization beam splitter."

Applicant's amendment of claim 18 is sufficient in overcoming the previous rejection of claims 19, 19, and 21 under §102(e) as being anticipated by Cao. Although Cao does disclose reflectors (704) and (712) that are operable to maintain a polarization state of light, they are only disposed in the path of light signals having the second polarization state (since it is the second polarization state that is reflected by the recited beam splitter).

Conclusion


THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (571) 272-2314. The examiner can normally be reached on Mon.-Fri. 9 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Drew Dunn whose number is (571) 272-2312 and who can be reached on Mon.- Thu., 9 - 5.

The centralized fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for *all* communications.


JOHN JUBA, JR.
PRIMARY EXAMINER
Art Unit 2872

March 29, 2005